

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claims 1 - 23 (canceled)

24. (currently amended) A plasma processing apparatus for processing a sample ~~disposed~~ located in a process chamber inside of a vacuum chamber ~~vessel~~, using a plasma generated therein comprising:

a sample stage disposed at a lower position inside of the ~~vacuum process~~ chamber ~~on which and having the sample is located thereon~~;

a plate ~~disposed at an upper side portion of~~ constituting a ceiling of the process chamber inside of the vacuum vessel and disposed opposite to and parallel with the sample stage parallelly so as to face the plasma generated inside a space between the sample stage and the plate, wherein the plate covers an area extending from a center of the sample to at least a periphery of the sample, a through-hole is disposed in the plate, opposing thereto inside of the vacuum chamber, wherein the plate faces to the plasma generated inside the space of the vacuum chamber between the plate and the sample stage, and electric power is supplied to the plate for generating the plasma;

~~a member disposed at an upper side portion of the plate and on the plasma facing side of which the plate is disposed;~~

an optical transmitter disposed inside of the vacuum vessel and at a back side of the plate and held therein, an end face of the optical transmitter being opposite to

and almost in contact with a back surface of the plate, and mounted with respect to the member disposed at the upper side portion of the plate which is disposed inside of the vacuum chamber so that an end face of the optical transmitter is almost in contact with or spaced apart from a back of the plate at an opening of a the through-hole in the plate having a smaller diameter than a diameter of the optical transmitter, wherein the optical transmitter which receives at the end face thereof light from the process vacuum-chamber via the through-hole; and

a holder disposed at an the upper side portion of the plate which holds the optical transmitter with respect to the member at the back side of the plate.

25. (previously presented) A plasma processing apparatus according to claim 24, wherein a diameter-depth ratio of the through-hole in the plate is in a range of 5 to 100.

26. (currently amended) A plasma processing apparatus according to claim 24, wherein the member disposed at the upper portion of the vacuum chamber is a flat plate member which is disposed in parallel with the sample opposed thereto the plate is made of an electrically conductive material.

Claim 27 (canceled)

Claim 28 (canceled)

29. (currently amended) A plasma processing apparatus according to claim 26 ~~25~~, wherein the ~~electric power supplied to the member is provided to the plate is~~ made of an electrically conductive material.

30. (currently amended) A plasma processing apparatus ~~provide~~ provided with a vacuum ~~chamber-vessel~~ inside of which an upper plate and a lower electrode are disposed substantially in parallel and ~~in opposition~~ opposing to each other ~~in a process chamber, a sample which is located on the lower electrode is processed using a plasma for processing a sample is generated in a space between the upper plate and the lower electrode by an electric field based on an electric power supplied to the upper plate,~~ comprising:

~~an a~~ power source which provides radio frequency electric power to the lower electrode;

an optical transmitter disposed inside of ~~mounted with respect to the vacuum chamber-vessel at a back side of the so as to be disposed at an upper plate and held therein,~~ side portion of the upper plate with an end face of the optical transmitter being disposed opposite to a back surface ~~being almost in contact with or spaced apart from the back of the upper plate, at and~~ an opening of a through-hole disposed in of the upper plate ~~having has~~ a smaller diameter than a diameter of the optical transmitter, wherein the optical transmitter which receives at the end face thereof light from the ~~vacuum-process~~ chamber via the through-hole, ~~wherein the upper plate faces the plasma; and~~

a holder disposed at an the upper side portion of the upper plate which holds the optical transmitter ~~with respect to the vacuum chamber~~ at the back side of the

upper plate so that the end face is almost in contact with the back surface of the upper plate;

wherein the upper plate constitutes a ceiling of the process chamber inside of the vacuum vessel facing the plasma, and the upper plate covers an area extending from a center of the sample to at least a periphery of the sample, and faces the plasma.

31. (previously presented) A plasma processing apparatus according to claim 30, wherein a diameter-depth ratio of the through-hole in the upper plate is in a range of 5 to 100.

32. (previously presented) A plasma processing apparatus according to claim 30, further comprising a disk formed member disposed at the upper side portion of the upper plate and on the plasma facing side of which the upper plate is disposed, wherein the electric power for generating the plasma is supplied to the upper plate via the disk formed member.

33. (currently amended) A plasma processing apparatus according claim 32, wherein the disk formed member is mounted with respect to the vacuum chamber vessel.

34. (previously presented) A plasma processing apparatus according to claim 31, further comprising a disk formed member disposed at the upper side portion of the upper plate and on the plasma facing side of which the upper plate is disposed,

wherein the electric power for generating the plasma is supplied to the upper plate via the disk formed member.

35. (currently amended) A plasma processing apparatus according claim 34, wherein the disk formed member is mounted with respect to the vacuum chamber vessel.